

CLAIMS

What is claimed is at least the following:

1 1. A data communication system, comprising:
2 a number of nodes interconnected in a network, the nodes including a
3 source node, a destination node, and at least one intermediate node;
4 source logic in the source node to identify a data route from the source
5 node to the destination node through the at least one intermediate node, the data route
6 being specified by a sequence of at least one destination port value and a current hop
7 count that are attached to a data packet to be transmitted from the source node to the
8 destination node;
9 routing logic in the at least one intermediate node to route the data
10 packet along the data route; and
11 destination logic in the destination node to detect a final destination of
12 the data packet.

1 2. The system of claim 1, further comprising:
2 return routing logic in the at least one intermediate node to record at
3 least one source port value of the at least one intermediate node in the data packet; and
4 wherein a total hops value is attached to the data packet.

1 3. The system of claim 1, further comprising a routing table located in the
2 source node, the routing table containing at least one data route from the source node
3 to the destination node.

1 4. The system of claim 1, wherein the routing logic further comprises
2 logic to decrement the current hop count.

1 5. The system of claim 2, wherein the return routing logic further
2 comprises logic to replace the at least one destination port value in the data packet
3 with the source port value of the at least one intermediate node.

1 6. A data communication system, comprising:
2 a number of nodes interconnected in a network, the nodes including a
3 source node, a destination node, and at least one intermediate node;
4 path identification means in the source node for identifying a data route
5 from the source node to the destination node through the at least one intermediate
6 node, the data route being specified by a sequence of at least one destination port
7 value and a current hop count that are attached to a data packet to be transmitted from
8 the source node to the destination node;
9 routing means in the at least one intermediate node for routing the data
10 packet along the data route; and
11 destination means in the destination node for detecting an arrival of the
12 data packet at the destination node.

1 7. The system of claim 6, further comprising:
2 return routing means in the at least one intermediate node for
3 recording at least one source port value of the at least one intermediate node in the
4 data packet; and
5 wherein a total hops value is attached to the data packet.

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1 8. The system of claim 6, further comprising a routing table located in the
2 source node, the routing table containing at least one data route from the source node
3 to the destination node.

1 9. The system of claim 6, wherein the routing means further comprises
2 means for decrementing the current hop count.

1 10. The system of claim 7, wherein the return routing means further
2 comprises means for replacing the at least one destination port value in the data packet
3 with the source port value of the at least one intermediate node.

1 11. A method for data communications, comprising the steps of:
2 generating a data packet to transmit from a source node to a destination
3 node through at least one intermediate node in a network;
4 identifying a data route from the source node to the destination node
5 through the at least one intermediate node, the data route being specified by a
6 sequence of at least one destination port value and a current hop count that are
7 attached to the data packet to be transmitted from the source node to the destination
8 node;
9 routing the data packet along the data route in the at least one
10 intermediate node; and
11 detecting an arrival of the data packet in the destination node.

1 12. The method of claim 11, further comprising the steps of:
2 attaching a total hops value to the data packet; and
3 recording at least one source port value of the at least one intermediate
4 node in the data packet in the at least one intermediate node.

1 13. The method of claim 11, wherein the step of identifying a data route
2 from the source node to the destination node through the at least one intermediate
3 node further comprises the step of examining a routing table located in the source
4 node, the routing table containing at least one data route from the source node to the
5 destination node.

1 14. The method of claim 11, wherein the step of routing the data packet
2 along the data route in the at least one intermediate node further comprises the step of
3 decrementing the current hop count.

1 15. The method of claim 12, wherein the step of recording at least one
2 source port value of the at least one intermediate node in the data packet in the at least
3 one intermediate node further comprises the step of replacing the at least one
4 destination port value in the data packet with the at least one source port value of the
5 at least one intermediate node.